of nude mice. The histological characterization was performed before and after implantation using haematoxylin/eosin (HE) and alizarin red staining. H&E staining showed that the cell sheets before implantation were composed by a multilayer of cells embedded in a collagen matrix while the alizarin red revealed extensive calcium deposition. A similar analysis of the implanted cell sheets showed a good integration with host tissues without visible inflammatory response. Calcium deposition was visible several cell layers above the flap's basal cells both after 3 and 6 weeks of implantation suggesting the induction of mineralization by the implanted cell sheets. The present work shows promising results concerning the application of cell sheet engineering for bone-related applications and future work may confirm the suitability of this powerful technique for bone tissue engineering purposes.

(OP 78) Development and Characterization of Osteogenic Cell Sheets in an *In vivo* Model

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Despite some successes in the tissue engineering field its evolution seems to be tampered by limitations such as cell sourcing and the lack of adequate scaffolds to support cell growth and differentiation. The use of stem cells combined with cell sheet engineering technology seems a promising way to overcome these limitations. In this work bone marrow cells were flushed from 3 weeks old Wistar rat femurs and cultured in basal DMEM medium until subconfluence. Cells were then transferred to thermo-responsive dishes (3×10^5 cells/dish) and cultured for 3 weeks in osteogenic medium. Cell sheets were recovered from the dishes by temperature reduction and subcutaneously transplanted into the dorsal flap